



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 24-027R1

Issued: 27 March 2024

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.

All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated.

Design Approval Holder's Name: **Type/Model designation(s):**

ROLLS-ROYCE DEUTSCHLAND Ltd & Co KG Tay engines

Effective Date: [TBD - standard: 14 days after AD issue date]

TCDS Number(s): EASA.E.063

Foreign AD: Not applicable

Supersedure: None

ATA 72 – Engine – High Pressure Turbine Rotor Shaft / Spring-Loaded Pin Assembly – Inspection

Manufacturer(s):

Rolls-Royce plc

Applicability:

Tay 650-15 engines, all engine serial numbers.

These engines are known to be installed on, but not limited to, Fokker F28 Mark 0100 series aeroplanes.

Definitions:

For the purpose of this AD, the following definitions apply:

Affected part(s): Spring-loaded pin assembly of the high pressure (HP) turbine rotor shaft and seal assembly; and HP turbine to HP compressor shaft spherical coupling.

The NMSB: Rolls-Royce Non-Modification Service Bulletin (NMSB) Alert TAY-72-A1848 Revision 2.



Although the NMSB has an 'A' (Alert) in the number, an earlier or later revision may not have that 'A', which does not effectively alter the publication references in this AD.

Groups: Group 1 engines are those that have Rolls-Royce Service Bulletin (SB) TAY-72-1665 embodied. Group 2 engines are those that do not have Rolls-Royce SB TAY-72-1665 embodied.

Overhaul: A maintenance action as defined in Rolls-Royce TAY 650-15 Engine Management Programme and NMSB TAY-70-1050.

Module 04301AA: Combustion and HP turbine module.

Reason:

Axial movement of the HP turbine rotor was reported. Subsequent investigation determined that installation of an affected part having a specific configuration standard can cause the reported occurrence and that engines in post-SB TAY-72-1665 configuration are affected.

This condition, if not detected and corrected, could lead to failure of the HP turbine rotor, possibly resulting in high energy debris release, with consequent damage to, and reduced control of the aeroplane.

To address this potential unsafe condition, Rolls-Royce issued the NMSB, as defined in this AD, to provide inspection instructions.

For the reasons described above, this AD requires inspections of the affected parts and, depending on findings, either repetitive inspections or removal of the engine from service. This AD also introduces a condition for embodiment of Rolls-Royce SB TAY-72-1665.

Since EASA PAD 24-027 was issued, which referenced Revision 1 of Rolls-Royce NMSB Alert TAY-72-A1848, Rolls-Royce issued the NMSB, as defined in this PAD, introducing redefined compliance time and tooth worn criteria.

For the reasons described above, this PAD is re-published for additional consultation.

Required Action(s) and Compliance Time(s):

Required as indicated by this AD, unless the actions required by this AD have been already accomplished:

Inspection(s):

- (1) For Group 1 engines: Within the compliance time as defined in Table 1 of this AD and, thereafter, at intervals as defined in Table 2 of this AD, as applicable, inspect each affected part and determine the average unworn width of three teeth of the HP turbine to HP compressor shaft spherical coupling in accordance with the instructions of the NMSB.



Table 1 – Compliance Time

A or B, whichever occurs later	
A	Within 3 000 flight cycles (FC) since the last module 04301AA overhaul
B	Within 3 months after the effective date of this AD

Table 2 – Inspection Intervals

Average unworn tooth width determined during previous inspection	Interval
3.1 mm or more	1 000 FC
2.9 mm or more but less than 3.1 mm	500 FC
2.8 mm or more but less than 2.9 mm	250 FC

Corrective Action(s):

- (2) If, during any inspection as required by paragraph (1) of this AD, the spring-loaded pin assembly of the HP turbine rotor shaft and seal assembly is found not correctly engaged with HP turbine to HP compressor shaft spherical coupling, or the average unworn tooth width is determined to be less than 2.8 mm, before next flight, remove the engine from service.

Credit:

- (3) Inspection and corrective action(s), accomplished before the effective date of this AD, in accordance with the instructions of Revision 1 of the Rolls-Royce NMSB Alert TAY-72-A1848 are acceptable to comply with the requirements of paragraphs (1) and (2) of this AD, as applicable, provided that the follow-on inspection interval is determined as defined in Table 2 of this AD and, within 500 FC after that inspection, the inspection result is reassessed in accordance with the instructions of the NMSB.

Terminating Action:

- (4) None.
- (5) For Group 2 engines: From the effective date of this AD, modification of an engine in accordance with the instructions of Rolls-Royce SB TAY-72-1665 is allowed, provided that, after that modification, the engine is inspected and, depending on findings, corrected as required by this AD.

Ref. Publications:

Rolls-Royce NMSB Alert TAY-72-A1848 Revision 1 dated 20 February 2024, or Revision 2 dated 21 March 2024.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.



Remarks:

1. This Proposed AD will be closed for consultation on 10 April 2024.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this PAD, and which may occur, or have occurred on a product, part or appliance not affected by this PAD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this PAD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
4. For any question concerning the technical content of the requirements in this PAD, please contact: Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlewitz, 15827 Blankenfelde-Mahlow, Germany, Telephone: + 49 33708 6 3500, E-mail: DWOSD@rolls-royce.com.

